

## P/ ENT COOPERATION TREAT

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C.20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 17 February 2000 (17.02.00)	
<b>International application No.</b> PCT/GB99/02013	<b>Applicant's or agent's file reference</b> MTW50636/WO
<b>International filing date</b> (day/month/year) 06 July 1999 (06.07.99)	<b>Priority date</b> (day/month/year) 07 July 1998 (07.07.98)
<b>Applicant</b> WILSON, Craig, Stewart et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
21 January 2000 (21.01.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland	<b>Authorized officer</b> S. Mafla
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

## PCT INTERNATIONAL COOPERATION TREATY

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NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

KEITH W NASH & CO  
90-92 Regent Street  
Cambridge CB2 1DP  
ROYAUME-UNI

Date of mailing (day/month/year) 08 March 2000 (08.03.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference MTW50636/WO	
International application No. PCT/GB99/02013	International filing date (day/month/year) 06 July 1999 (06.07.99)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address HUMPHRIES, Martyn ICI Group Intellectual Property P.O. Box 90, Wilton Middlesbrough Cleveland TS90 8JE United Kingdom	State of Nationality	State of Residence
	Telephone No. 01642 437419	
	Facsimile No. 01642 436146	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input checked="" type="checkbox"/> the person	<input checked="" type="checkbox"/> the name	<input checked="" type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address KEITH W NASH & CO 90-92 Regent Street Cambridge CB2 1DP United Kingdom	State of Nationality	State of Residence
	Telephone No. (1223) 355477	
	Facsimile No. (1223) 324353	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer S. Cruz
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

# APPLICATION UNDER UNITED STATES PATENT LAWS

Atty. Dkt. No. PM 275447  
(M#)

Invention: **PERFUME COMPOSITION**

Inventor (s): **WILSON, Craig, S.  
MINHAS, Tony  
BEHAN, John M.  
PROVAN, Alan F.**

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This is a:

- ☐ Provisional Application
- ☐ Regular Utility Application
- ☐ Continuing Application
  - ☒ The contents of the parent are incorporated by reference
- ☒ PCT National Phase Application
- ☐ Design Application
- ☐ Reissue Application
- ☐ Plant Application
- ☐ Substitute Specification
  - Sub. Spec. Filed \_\_\_\_\_
  - in App. No. \_\_\_\_\_ / \_\_\_\_\_
- ☐ Marked up Specification re
  - Sub. Spec. filed \_\_\_\_\_
  - In App. No. \_\_\_\_\_ / \_\_\_\_\_

## SPECIFICATION

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/02013

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 A61K7/32 A61K7/46

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 44 11 664 A (BEIERSDORF AG) 12 October 1995 (1995-10-12) page 2, line 3 - line 8 page 2, line 41 - line 58 page 3, line 50 - line 59 page 4, line 1 - line 25 page 4, line 50 - line 64 examples ---	1, 2, 6, 8-11
Y	EP 0 731 160 A (TAKASAGO PERFUMERY CO LTD) 11 September 1996 (1996-09-11) page 2, line 33 - line 47 page 3, line 42 - line 49 page 4, line 4 - line 13 page 6, line 15 - line 40 table 1 page 8, line 1 - page 9, line 1 --- -/--	1, 2, 6, 9-11



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

9 November 1999

Date of mailing of the international search report

16/11/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
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Authorized officer

Cielen, E

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/02013

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 89 00042 A (GAF CORP) 12 January 1989 (1989-01-12)	3,9
Y	page 6, line 11 - line 15  table 1 page 10, line 11 - line 15 table 4  ---	1,2,4,6, 7,10,11
X	US 5 554 588 A (BEHAN JOHN M ET AL) 10 September 1996 (1996-09-10)	3,9
Y	column 2, line 42 - column 5, line 27  column 6, line 20 - line 22 column 6, line 55 - line 57 table 1 examples 5-8  ---	1,2,4,6, 7,10,11
A		5
X	EP 0 480 520 A (QUEST INT) 15 April 1992 (1992-04-15)	3,9
Y	abstract  page 2, line 1 - line 7 page 3, line 7 - line 48 example 2  ---	1,2,4,6, 7,10,11
X	WO 96 12467 A (PROCTER & GAMBLE) 2 May 1996 (1996-05-02)	3,9
Y	abstract  page 4, line 138 - page 5, line 157 page 5, line 166 - line 177 tables 1,2 examples 75-83 claims 1,3,5-8  ---	1,2,4,6, 7,10,11
X	US 4 548 821 A (HALL JOHN B ET AL) 22 October 1985 (1985-10-22) examples VII-XI  ---	3
X	US 3 945 950 A (VOSGANIANTZ JEAN-JACQUES) 23 March 1976 (1976-03-23) column 1, line 3 - line 9 column 3, line 49 - line 65  ---	3
Y	MORRIS J A ET AL: "ANTIMICROBIAL ACTIVITY OF AROMA CHEMICALS AND ESSENTIAL OILS" JOURNAL OF THE AMERICAN OIL CHEMISTS' SOCIETY, 1 May 1979 (1979-05-01), pages 595-603, XP000645444 ISSN: 0003-021X page 595, paragraph 3 page 596, paragraph 2 table III  ---  -/--	1,2,4,6, 7,9-11

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/02013

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US 5 874 070 A (BUCKNER ROBIN YAGER ET AL) 23 February 1999 (1999-02-23)	3,9
P,Y	column 2, line 39 - line 61  column 4, line 49 -column 6, line 50 column 10, line 40 - line 43 column 11, line 12 - line 14 claim 1 -----	1,2,4,6, 7,10,11
P,X	WO 98 50011 A (PROCTER & GAMBLE) 12 November 1998 (1998-11-12) page 1, paragraph 1 page 36, paragraph 2 -----	3

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/02013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4411664 A	12-10-1995	WO 9526708 A EP 0754028 A JP 9511244 T US 5895643 A	12-10-1995 22-01-1997 11-11-1997 20-04-1999
EP 0731160 A	11-09-1996	JP 8245979 A CA 2170185 A US 5753610 A	24-09-1996 09-09-1996 19-05-1998
WO 8900042 A	12-01-1989	US 4834970 A US 4808569 A EP 0323981 A JP 1503709 T	30-05-1989 28-02-1989 19-07-1989 14-12-1989
US 5554588 A	10-09-1996	CA 2082281 A,C DE 69221087 D DE 69221087 T EP 0545556 A ES 2104850 T JP 5255689 A MX 9206423 A ZA 9208578 A	09-05-1993 04-09-1997 13-11-1997 09-06-1993 16-10-1997 05-10-1993 01-05-1993 06-05-1994
EP 0480520 A	15-04-1992	AT 115398 T AU 640051 B AU 8565691 A CA 2052965 A,C DE 69105904 D DE 69105904 T ES 2066340 T US 5711941 A	15-12-1994 12-08-1993 16-04-1992 12-04-1992 26-01-1995 04-05-1995 01-03-1995 27-01-1998
WO 9612467 A	02-05-1996	AU 3677995 A CA 2211004 A EP 0805673 A US 5833999 A	15-05-1996 02-05-1996 12-11-1997 10-11-1998
US 4548821 A	22-10-1985	US 4520032 A EP 0154918 A JP 1397914 C JP 60208934 A JP 62005894 B US 4576740 A US 4535192 A US 4576186 A	28-05-1985 18-09-1985 07-09-1987 21-10-1985 07-02-1987 18-03-1986 13-08-1985 18-03-1986
US 3945950 A	23-03-1976	FR 2399239 A CH 620588 A DE 2542937 A ES 441445 A FR 2286655 A GB 1517967 A IT 1047618 B	02-03-1979 15-12-1980 08-04-1976 16-11-1977 30-04-1979 19-07-1978 20-10-1980
US 5874070 A	23-02-1999	AU 7825998 A WO 9856342 A	30-12-1998 17-12-1998
WO 9850011 A	12-11-1998	US 5874073 A	23-02-1999

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>MTW50636/WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 99/ 02013</b>	International filing date (day/month/year) <b>06/07/1999</b>	(Earliest) Priority Date (day/month/year) <b>07/07/1998</b>
Applicant <b>QUEST INTERNATIONAL B.V. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

### 4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

### 5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

### 6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.



# INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 99/ 02013

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
**See FURTHER INFORMATION sheet PCT/ISA/210**
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## Continuation of Box I.2

Present claims 1,2,4-11 relate to a composition, a method, a product and a use defined by reference to the parameter "a minimum inhibitory concentration (MIC) for Coryneform bacteria of greater than 0.1%". The use of this parameter in the present context is considered to lead to a lack of clarity within the meaning of Article 6 PCT, because it is not clear to which unit such percentage corresponds. It is impossible to compare the parameter the applicant has chosen to employ with what is set out in the prior art. The lack of clarity is such as to render a meaningful complete search impossible. Consequently, the search has been restricted to the compounds enumerated in claim 3, to perfume products having antibacterial activity against Coryneform bacteria, obvious variants thereof and the general idea underlying the application.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

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WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b> <b>A61K 7/32, 7/46</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 00/01352</b> <b>(43) International Publication Date:</b> 13 January 2000 (13.01.00)
<b>(21) International Application Number:</b> PCT/GB99/02013 <b>(22) International Filing Date:</b> 6 July 1999 (06.07.99) <b>(30) Priority Data:</b> 9814648.3 7 July 1998 (07.07.98) GB <b>(71) Applicant (for all designated States except US):</b> QUEST INTERNATIONAL B.V. [NL/NL]; Huizerstraatweg 28, NL-1411 GP Naarden (NL). <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> WILSON, Craig, Stewart [GB/GB]; 30 Tilden Close, High Halden, Kent TN26 3LR (GB). MINHAS, Tony [GB/GB]; 30 King Edward Avenue, Dartford, Kent DA1 2HZ (GB). BEHAN, John, Martin [GB/GB]; The Forge, The Green, Boughton Aluph, Ashford, Kent TN25 4JB (GB). PROVAN, Alan, Forbes [GB/GB]; 5 Bishops Green, Singleton, Ashford, Kent TN23 5BQ (GB). <b>(74) Agents:</b> HUMPHRIES, Martyn et al.; ICI Group Intellectual Property, P.O. Box 90, Wilton, Middlesbrough, Cleveland TS90 8JE (GB).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> PERFUME COMPOSITION  <b>(57) Abstract</b>  A perfume composition contains at least 30 % by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1 %. The composition can be used in deodorant products to reduce body malodour sub-lethally, i.e. without significantly affecting the numbers of bacteria present on the skin surface.		

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Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

### PERFUME COMPOSITION

The invention relates to a perfume composition containing perfume component(s) which is capable of sub-lethally reducing or preventing body malodour produced from perspiration moisture materials by members of the skin microflora, ie without killing significant numbers of the bacteria present on the skin surface.

Body odour results from the microbial transformation of organic molecules both simple and complex which are constituents of sweat. As well as the pungent undesirable odour that is produced by these reactions some of the by-products may, in some cases cause irritation to the skin.

It has been suggested in the prior art that body odour can be reduced by using various different materials, for example;

- 1) Astringent agents such as aluminium salts e.g. aluminium chlorohydrate. These components work by reducing or stopping the secretion of perspiration. However these actives denaturize skin proteins, and may alter the thermal balance of the armpit.
- 2) The topical application of antimicrobial substances to the skin. Bactericidal agents e.g. ethanol are a non specific mechanism of controlling body odour which as a result kill without any degree of discrimination of the micro-organisms present on the skin. Organisms that are not responsible for malodour are killed to the same extent or worse than their malodorous counterparts.
- 3) Perfumes may be applied to mask the odour, but new generation perfumes have been disclosed which exhibit an active deodorant effect on the underarm skin flora. EP-B-3172, EP-A-5618, US-A-43044679, US-A-4322308, US-A-4278658, US-A-4134838, US-A-4288341 and US-A-4289641 all describe perfume compositions which exhibit a deodorant action when applied to human skin, or when included in a laundry product used to launder textiles.

The present generation of deodorants offer protection against body malodour by reducing the numbers of the bacterial microflora considerably without any degree of selective discrimination.

Coryneform bacteria found on human skin have been shown to carry out the incomplete biotransformation of organic molecules secreted in human sweat. Leyden. J.J. et al, "The microbiology of human axilla and its relationship to axillary odour", J. of Invest. Derm., 77(1981), 413-416. Coryneform bacteria have also been shown to be responsible for the production of various odorous metabolites. J. Soc. Cosmet. Chem., 34 (1982), 193-202.

The present invention is directed to a perfume composition and the use thereof to retard or inhibit the production of malodorous compounds produced, for example by coryneform bacteria present on the skin surface, preferably without killing significant numbers of the bacteria, and/or other members of the skin microflora.

Accordingly, the present invention provides a perfume composition comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%.

The invention further provides a perfume composition comprising at least 30% by weight of one or more of the following perfume components;

(Z)-3,4,5,6,6-pentamethylhept-3-en-2-one, 2,6,10-trimethylundec-9-enal, 1-(4-Methoxyphenyl)-1-propene, diethylcyclohex-2-en-1-one, dimethyl cyclohex-2-en-1-one, Basil comores, 2-methyl-5-(1-methyl-1-ethenyl)-2-cyclohexen-1-one, Cis-3-hexenyl salicylate, methyl 3,3-dimethylbicyclo(2.2.1)heptane-2-carboxylate, Citronellol, Corriander, 2-methyl-3-(4-(1-methylethyl)phenyl)propanal, 1-(2,6,6-trimethyl-1,3-cyclohexadienyl)-2-buten-1-one, Dihydrojasnone, alpha,alpha-Dimethylphenylethylacetate, Dimethyl anthranilate, 1-(2-((1-(ethyloxy)ethyl)oxy)ethyl)benzene, 4-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde, 3-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde, Firneedle, 3-(1,3-benzodioxol-5-yl)-2-methylpropanol,  $\alpha$ -ionone,  $\beta$ -ionone, tricyclo[5.2.1.0 2,6]dec-4-en-8-yl ethanoate, Jasmopyrane forte, 1-methoxy-4-(2-propenyl)-benzene, 2-(1,1-dimethylethyl)cyclohexyl ethanoate, PTBCHA, 2,4-dimethyl-4-phenyltetrahydrofuran, 4-Methyl-2-(2-methylprop-1-enyl)tetrahydropyran, Rosemary Tunisian, 3,6-dihydro-2-phenyl-4-methyl-2H-pyran, Terpinolene extra, Tetrahydro linalol, Thyme white, Ti-tree pure, and Undecalactone gamma.

The invention also provides a cosmetic method for reducing or preventing body malodour by topically applying to human skin a perfume composition comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%.

The invention also provides a deodorant product comprising a perfume composition defined herein.

The invention also provides the use of a perfume composition, comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.

The invention still further provides the use of a deodorant product, comprising a perfume composition which comprises at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.

Coryneform is a designation of a large ill-defined group of bacteria. The diverse genera that have been included with the coryneforms include Actinomyces, Arachnia, Arcanobacterium, Arthrobacter, bacterionema, Bifidobacterium, Brevibacterium, Cellulomonas, Corynebacterium, Eysipelothrix, Eubacterium, Kurthia, Listeria, Mycobacterium, Nocardia, Oerskovia, Propionibacterium, Rhodococcus and Rothia.

The term "perfume component" is used herein to represent a material which is added to a perfume to contribute to the olfactive properties of the perfume. A perfume component can be acceptably employed to provide odour contributions to the overall hedonic performance of products. Typically, a perfume component will be generally recognised as possessing odours in its own right, will be relatively volatile and often has a molecular weight within the range 100 to 300. Typical materials which are perfume components are described in "Perfume and Flavour Chemicals", Volumes I and II (Steffan Arctander, 1969). A perfume composition will contain a number of individual perfume components, and optionally a suitable diluent. The concentration of perfume components referred to herein is relative to the total concentration of perfume components present in the composition, ie excludes any diluent.

The perfume composition according to the present invention preferably comprises at least 40%, more preferably at least 50%, particularly at least 60%, and especially at least 70% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria, preferably for *Corynebacteria xerosis* as measured in Example 1 below, of greater than 0.1%. The preferred perfume components preferably have an MIC greater than 0.25%, more preferably greater than 0.5%, and also suitably have an MIC of less than 10%, preferably less than 5%, more preferably less than 3%, particularly less than 2%, and especially less than 1%.

The preferred perfume components have been shown to be capable of a significant deodorant action when used at concentrations below their MIC for coryneform bacteria. The preferred components may be added to other perfume components to deliver perfumes with the desired deodorant and hedonistic properties. The perfume composition suitably comprises up to 70%, preferably up to 60%, more preferably up to 50%, particularly up to 40%, and especially up to 30% by weight of perfume components having an MIC for coryneform bacteria outside of the above preferred ranges. A perfume composition according to the present invention surprisingly provides a perfume with high deodorant activity, but measurably lower anti-microbial effects, particularly against coryneform bacteria. The perfume composition preferably provides deodorant activity without killing significant numbers of the coryneform bacteria, and/or other types of skin bacteria.

A preferred perfume composition yields, an Odour Reduction Value, measured as described in Example 3, of at least 10%, more preferably at least 30%, and particularly at least 50%.

A perfume composition according to present invention may be used in deodorant products which include body deodorants and antiperspirants such as roll ons, gel products, stick deodorants, antiperspirants, shampoos, soaps, shower gels, talcum powder, hand creams, skin conditioners, sunscreens, sun tan lotions, skin and hair conditioners. The

perfume composition may also be used in other product areas to deliver a degree of deodorant protection, for example in laundry and household products such as rinse conditioners, household cleaners and detergent cleaners. The provision of deodorant protection may also be provided in textiles themselves by the incorporation of these perfume compositions during production, using techniques known in the art. A deodorant product preferably comprises at least 0.05% to 4%, more preferably 0.1% to 2% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, more preferably selected from the list below.

Suitable perfume components, for use in a perfume composition according to the present invention, include the following materials.

- Acetyl di iso amylene ((Z)-3,4,5,6,6-pentamethylhept-3-en-2-one)
- Adoxal (2,6,10-trimethylundec-9-enal)
- Anethole synthetic (1-(4-Methoxyphenyl)-1-propene)
- Azarbre (mixture of diethyl and dimethylcyclohex-2-en-1-one)
- 15 Basil comores
- Carvone laevo (2-methyl-5-(1-methyl-1-ethenyl)-2-cyclohexen-1-one)
- Cis-3-hexenyl salicylate
- Cistulate (methyl 3,3-dimethylbicyclo(2.2.1)heptane-2-carboxylate)
- Citronellol
- 20 Corriander
- Cyclamen aldehyde (2-methyl-3-(4-(1-methylethyl)phenyl)propanal)
- Damascenone (1-(2,6,6-trimethyl-1,3-cyclohexadienyl)-2-buten-1-one)
- Dihydrojasmane
- Dimethyl Benzyl Carbonyl acetate (alpha,alpha-Dimethylphenylethylacetate)
- 25 Dimethyl anthranilate
- Efetaal (1-(2-((1-(ethyloxy)ethyl)oxy)ethyl)benzene)
- Empetaal (mixture of 4-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde) and 3-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde)
- Fir needle
- 30 Helional (3-(1,3-benzodioxol-5-yl)-2-methylpropanol)
- Ionone (mixture of  $\alpha$  and  $\beta$  isomers)
- Jasmacyclene (tricyclo[5.2.1.0 2,6]dec-4-en-8-yl ethanoate)
- Jasmpyrane forte
- Methyl chavicol (1-methoxy-4-(2-propenyl)-benzene)
- 35 Orthoate (2-(1,1-dimethylethyl)cyclohexyl ethanoate)
- PTBCHA
- Rhubafuran (2,4-dimethyl-4-phenyltetrahydrofuran)



Rose Oxide Racemic (4 -Methyl -2 - (2 - methylprop -1-enyl)tetrahydropyran)

Rosemary Tunisian

Rosyrane (3,6-dihydro-2-phenyl-4-methyl-2H-pyran)

Terpinolene extra

5 Tetrahydro linalol

Thyme white

Ti-tree pure

Undecalactone gamma

A preferred perfume composition comprises at least 5, more preferably at least 10,  
10 and particularly at least 18 of the above perfume components.

The invention is illustrated by the following examples.

#### **EXAMPLE 1**

##### **Standard assessment of MIC**

A fresh culture of the test inoculum (*Corynebacteria xerosis* NCTC 7243 (National  
15 Collection of Type Cultures, Public Health Laboratory Service, Central Public Health  
Laboratory , 61 Colindale Avenue, London)) (redeposited on 22 July 1999 under the  
Budapest Treaty as NCIMB 41021 (National Collections of Industrial and Marine Bacteria  
Ltd, 23 St Machar Drive, Aberdeen Scotland) diluted in sterile 0.1% special peptone solution  
to give a concentration of approximately  $10^6$  cfu/ml was prepared.

20 Test samples were diluted in sterile trptone soya broth (TSB) Each row of the  
microtitre plate (labelled A - H) was allocated to one sample, i.e. eight samples per plate.  
Row 8 (H) contained only TSB for use as a bacterial control to indicate level of turbidity in  
the absence of test material. Aseptically 200  $\mu$ l of the initial dilution was transferred to the 1st  
and 7th well of the appropriate row. All other test wells were filled with 100  $\mu$ l of sterile TSB  
25 using an 8 channel pipette. The contents of all wells in column 1 were mixed by sucking  
samples up and down pipette tips before 100  $\mu$ l was transferred to column 2. The same  
sterile pipette tips can be used to transfer 100  $\mu$ l of each well in column 7 in to the  
appropriate well in column 8. Tips were discarded into disinfectant solution. Using fresh  
sterile tips the process was repeated by transferring 100  $\mu$ l from column 2 into column 3 (and  
30 8 into 9). The process was continued until all wells in columns 6 and 12 contained 200  $\mu$ l.  
After mixing 100  $\mu$ l was discarded from wells in these columns to waste.

To all wells 100  $\mu$ l of pre-diluted test culture was added giving 200  $\mu$ l final volume in  
each well.

A blank plate was prepared for each set of samples using the above protocol except  
35 100  $\mu$ l of sterile 0.1% peptone was added instead of bacterial culture.

Plates were sealed using autoclave tape and incubated overnight at 35° C.

The reader was preset to gently agitate the plates to mix the contents before reading

- absorbance at 540 nm. The control plate for each set of samples was read first. The reader was then reprogrammed to use the control readings to blank all other plate readings of the set of test materials (i.e. removing turbidity due to perfume and possible colour changes during incubation) thus only printing out absorbances due to turbidity resulting from bacterial growth. Limits were set so that degrees of turbidity were given a rating.

The MIC was taken as the level of sample required to inhibit growth completely (change in absorbance < 0.2).

### **EXAMPLE 2**

#### **Perfume Formulations**

Ingredient	% by Weight	
	Perfume X	Perfume Y
Acetyl di iso amylene	7	5.8
Adoxal		0.4
Amberlyn super PM577	4	
Azarbre	4	
Benzyl acetate extra	8	6.7
Benzyl salicylate	6.5	9.7
Cassis base 345 AB2967		4.2
Cis-3-hexenyl salicylate		2.5
Citral lemarome		0.7
Citronellol pure		14.2
Cyclamen aldehyde		4.2
Dihydro Eugenol	1.5	
Dihydro Jasmone	0.7	
Dimethyl benzyl carbiny acetate	3	
Diphenyl methane	2	
Dupical		0.4
Empetal	0.4	0.5

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	Perfume X	Perfume Y
Geraniol pure	7	8
Helional		4.2
Ionone	12.5	
Jasmacyclene	2.2	2.5
Ligustral	0.3	
Ligustral 10% DPG AA 1486	2.5	
Lyrar	8	12.5
Methyl iso eugenol	4	
Methyl octyl acetaldehyde 10% DPG		1.7
Orange terpenes		0.3
Ortholate		6.7
Para cresyl methyl ether	0.4	
Para tert butyl cyclo hexyl acetate	10	
Phenyl ethyl alcohol	10	10.6
Roseacetone	6	10.6

Perfume Z	
Ingredient	% by weight
Adoxal DEP AA022	4
Benzyl acetate extra	7.5
Benzyl salicylate	8
Cardamon ceylon A pure	2
Cassis base 345 AB 2967	2
Cis 3 hexenyl salicylate	5
Citronellol pure	12
Cyclamen aldehyde	2
Dimethyl Benzyl Carbinyl Acetate	2
Geraniol pure	8

Helional	2
Ionone	6
Ligustral	0.3
Lily aldehyde	6
Lyrar	10
Mandarinal 32048 SAE	4
Methyl iso eugenol	3
methyl octyl acetaldehyde	2.8
ortholate	3
Para cresyl methyl ether	0.4
Phenyl ethyl alcohol	5
Rosacetone	5

**EXAMPLE 3**

The following are typical formulations of deodorant products which are made by methods common in the art.

**Deodorant Sticks**

Ingredient	Content (% by weight)	
	Formulation 1A	Formulation 1B
Ethanol		8
Sodium Stearate	7	6
Propylene glycol	70	12
Perfume	1.5	2
PPG-3 Myristyl ether		28
PPG-10 Cetyl ether		10
Cyclomethicone		34
Silica		
Water	21.5	

**Aerosols**

Ingredient	content (% by weight)	
	Formulation 2A	Formulation 2B
Ethanol B	up to 100	
Propylene glycol	as required	
Perfume	2.5	1.5
Chlorhydrol microdry		31.8
Silicone Fluid DC344		up to 100
Bentone gel IPP		13.65
Irgasan DP300	0.03	
Dimethyl ether	20	
Concentrate		22
Water	23	

**Roll ons**

Ingredient	Content (% by weight)	
	Formulation 3A	Formulation 3B
Ethanol	to 100%	60
Klucel MF		0.65
Cremphor RM410		0.5
Perfume	0.5	1
AZTC *	20	
Cyclomethicone	68	
Dimethicone	5	
Silica	2.5	
Water		37.85

\* Aluminium zirconium tetrachlorohydro glycinate

The three perfume compositions of Example 2 were made and tested for deodorant action in an underarm product, using an Odour Reduction Value test generally as described in US-A-4278658, but with the substitution of the perfumed soap by perfumed roll-on product, using the formulation described in Formulation 3B.

- 5 The Odour Reduction Value test was carried out using a panel of 40 Caucasian male subjects. A standard quantity (approximately 0.4g) of a roll-on product containing one of the perfume compositions or an unperfumed control was applied to the axillae of the panel members in accordance with a statistical design.

- 10 After a period of five hours the axillary odour was judged by three trained female assessors who scored the odour intensity on the 0 to 5 scale, as shown below

Score	Odour level	Conc. of aqueous isovaleric acid (ml/l)
0	No odour	0
1	Slight	0.013
2	Definite	0.053
3	Moderate	0.22
4	Strong	0.87
5	Very Strong	3.57

Average scores for each test product and the control product were then determined and the score for each test product was subtracted from the score for the control product to give the Odour Reduction Value.

Average panel score perfume Y	1.67
Control panel score	2.41
Odour Reduction Value perfume	0.74
Odour Reduction Value as percentage of control score	31%
Difference for significance @95%	0.24
Difference for significance @99%	0.32

Average panel score perfume X	1.91
Control panel score	2.41

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Odour Reduction Value perfume	0.5
Odour Reduction Value as percentage of control score	21%

Difference for significance @95% 0.24

Difference for significance @99% 0.32

Average panel score perfume Z	2.05
Control panel score	2.41
Odour Reduction Value perfume	0.36
Odour Reduction Value as percentage of control score	15%

Difference for significance @95% 0.24

Difference for significance @99% 0.32

- 5 . The perfume composition referred to as X and Y had at least 40% by weight of specific perfume components listed on page 4 above, present, whilst the perfume referred to as Z had at least 30% of such components. Perfume X contained 40%, Y 41%, and Z 34% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%.

10

**CLAIMS**

1. A perfume composition comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%.
- 5 2. A perfume composition according to claim 1 wherein at least 30% by weight of the perfume components have a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.25%, and preferably less than 10%.
3. A perfume composition comprising at least 30% by weight of one or more of the following perfume components;
- 10 (Z)-3,4,5,6,6-pentamethylhept-3-en-2-one, 2,6,10-trimethylundec-9-enal, 1-(4-Methoxy phenyl)-1-propene, diethylcyclohex-2-en-1-one, dimethylcyclohex-2-en-1-one, Basil comores, 2-methyl-5-(1-methyl-1-ethenyl)-2-cyclohexen-1-one, Cis-3-hexenyl salicylate, methyl 3,3-dimethylbicyclo(2.2.1)heptane-2-carboxylate, Citronellol, Corriander, 2-methyl-3-(4-(1-methylethyl)phenyl)propanal, 1-(2,6,6-trimethyl-1,3-cyclohexadienyl)-2-
- 15 buten-1-one, Dihydrojasnone, alpha,alpha-Dimethylphenylethylacetate, Dimethyl anthranilate, 1-(2-((1-(ethyloxy)ethyl)oxy)ethyl)benzene, 4-(4-methyl-3-pentenyl) cyclohex-3-ene-1-carbaldehyde, 3-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde, Fir needle, 3-(1,3-benzodioxol-5-yl)-2-methylpropanol,  $\alpha$ -ionone,  $\beta$ -ionone, tricyclo[5.2.1.0 2,6]dec-4-en-8-yl ethanoate, Jasmopyrane forte, 1-methoxy-4-(2-
- 20 propenyl)-benzene, 2-(1,1-dimethylethyl)cyclohexyl ethanoate), PTBCHA, 2,4-dimethyl-4-phenyltetrahydrofuran, 4 -Methyl -2 - (2 - methylprop -1-enyl)tetrahydropyran, Rosemary Tunisian, 3,6-dihydro-2-phenyl-4-methyl-2H-pyran, Terpinolene extra, Tetrahydro linalol, Thyme white, Ti-tree pure, and Undecalactone gamma.
4. A perfume composition according to claim 1 comprising at least 30% by weight of one
- 25 or more of the perfume components listed in claim 3.
5. A perfume composition according to any one of the preceding claims which yields an Odour Reduction Value of at least 10%.
6. A cosmetic method for reducing or preventing body malodour by topically applying to human skin a perfume composition comprising at least 30% by weight of perfume
- 30 components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%.
7. A method according to claim 6 wherein the perfume composition comprises at least 30% by weight of one or more of the perfume components listed in claim 3.
8. A method according to either one of claims 6 and 7 wherein the biotransformation,
- 35 preferably by coryneform bacteria, of organic molecules present in human sweat is diminished sub-lethally.
9. A deodorant product comprising a perfume composition defined in claim 1 and/or in



claim 3.

10. The use of a perfume composition, comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.
- 5 11. The use of a deodorant product, comprising a perfume composition which comprises at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.

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## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum)

MTW50636 /WO

Box No. I TITLE OF INVENTION  
PERFUME COMPOSITION

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

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State (that is, country) of nationality:

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This person is applicant  
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States☒ all designated States except  
the United States of America☐ the United States  
of America only☐ the States indicated in  
the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

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This person is:

☐ applicant only☒ applicant and inventor☐ inventor only (If this check-box  
is marked, do not fill in below.)

State (that is, country) of nationality:

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State (that is, country) of residence:

GB

This person is applicant  
for the purposes of:☐ all designated  
States☐ all designated States except  
the United States of America☒ the United States  
of America only☐ the States indicated in  
the Supplemental Box☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf  
of the applicant(s) before the competent International Authorities as:☒ agent☐ common representativeName and address: (Family name followed by given name; for a legal entity, full official  
designation. The address must include postal code and name of country.)

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☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

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1. *If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:*
  - (i) *if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;*
  - (ii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*
  - (iii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*
  - (iv) *if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*
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  - (vi) *if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;*
  - (vii) *if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed.*
2. *If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.*
3. *If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.*

**CONTINUATION OF BOX NO. IV**

COLLINGWOOD, Anthony Robert  
 GRAHAM, John George  
 GRATWICK, Christopher  
 GIBSON, Sara Hillary Margaret  
 HUMPHRIES, Martyn  
 MILLROSS, Christopher Robert  
 ROBERTS, Jonathan Winstanley  
 THOMAS Ieuan

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: regional Office	international application: receiving Office
item (1) 7.7.1998 7 July 1998	9814648.3	GB		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

\* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(iii)). See Supplemental Box.

#### Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):		
ISA /	Date (day/month/year)	Number	Country (or regional Office)

#### Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets:	This international application is accompanied by the item(s) marked below:
request : 5	1. <input checked="" type="checkbox"/> fee calculation sheet
description (excluding sequence listing part) : 10	2. <input checked="" type="checkbox"/> separate signed power of attorney (to draw)
claims : 2	3. <input type="checkbox"/> copy of general power of attorney: reference number, if any:
abstract : 1	4. <input type="checkbox"/> statement explaining lack of signature
drawings :	5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):
sequence listing part of description :	6. <input type="checkbox"/> translation of international application into (language):
Total number of sheets : 18	7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material
	8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form
	9. <input checked="" type="checkbox"/> other (specify): FORM 23/77

Figure of the drawings which should accompany the abstract:

Language of filing of the international application: ENGLISH

#### Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

MARTYN HUMPHRIES  
AUTHORISED OFFICER

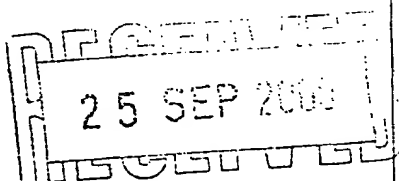
For receiving Office use only		2. Drawings:  <input type="checkbox"/> received:  <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:		
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NOTIFICATION OF TRANSMITTAL OF  
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EXAMINATION REPORT  
(PCT Rule 71.1)

Date of mailing  
(day/month/year) 18.09.2000

Applicant's or agent's file reference  
MTW 50636/WO

IMPORTANT NOTIFICATION

International application No.  
PCT/GB99/02013

International filing date (day/month/year)  
06/07/1999

Priority date (day/month/year)  
07/07/1998

Applicant  
QUEST INTERNATIONAL B.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.


4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA'

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## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MTW 50636/WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB99/02013	International filing date (day/month/year) 06/07/1999	Priority date (day/month/year) 07/07/1998
International Patent Classification (IPC) or national classification and IPC A61K7/32		
Applicant QUEST INTERNATIONAL B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 8 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☒ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 21/01/2000	Date of completion of this report 18.09.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Ortega Plaza. M.D. Telephone No. +49 89 2399 8284 

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/02013

## I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

### Description, pages:

1-11 as originally filed

### Claims, No.:

1-8,9 (part) as originally filed

9 (part),10-14 as received on 27/07/2000 with letter of 27/07/2000

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**see separate sheet**

## II. Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:

- ☐ copy of the earlier application whose priority has been claimed.  
☐ translation of the earlier application whose priority has been claimed.

2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid.

Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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3. Additional observations, if necessary:

**see separate sheet**

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 5.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 5 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	14
	No:	Claims	3,7,8,9,12,13
Inventive step (IS)	Yes:	Claims	14
	No:	Claims	3, 7-9, 12,13
Industrial applicability (IA)	Yes:	Claims	3.7-9. 12-14
	No:	Claims	



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2. Citations and explanations

**see separate sheet**

**VI. Certain documents cited**

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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**Re Item I**

Basis of the opinion

The Applicant is reminded of the fact that the search was incomplete. The search did not cover the subject-matter as defined in claim 1, since the search examiner declared that the search based upon the parameter "a minimum inhibitory concentration (MIC) for Coryneform bacteria of greater than 0.1%" was not possible (see further information sheet to ISA 210). This also applies to the subject-matter of claim 2, which is a dependent claim on claim 1, to the subject-matter of claims 2, 4-11 insofar as the perfume component is defined according to claim 1. Therefore the present preliminary examination report can only be based upon the claims whose subject-matter has been searched (claim 3) and upon claims 5, 7, 8, 9 but only insofar as the perfume components are defined according to claim 3 (Rule 66.1(e)).

New claims 12 to 14 are considered to be allowable, since they are based on originally filed claim 3 and on pages 3 and 5 of the description.

**Re Item II**

Priority

An inspection of the priority document has shown that the relevant parts relating to compositions comprising as perfume components those of claim 3 and the uses of the same can be considered to be entitled to the priority date of 07.07.98.

**Re Item III**

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. See comments in section I above.
2. Claim 5 has been formulated as dependent claim of one of the preceding claims. The characterizing feature relates to the result that the perfume composition "yields an Odor Reduction Value of at least 10%". The subject-matter of claim 5

lacks clarity, since the conditions for measuring the said parameter are not clearly defined and depend i.a. on the concentration of the perfume component/s in the total formulation (unclear) to be measured and in the nature of the cosmetic formulation itself (e.g. roll-on).

**Re Item V**

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following documents have been considered for the establishment of the present preliminary report:

D1 = DE-A-4411664

D2 = EP-A-0731160

D3 = WO-A-8900042

D4 = US-A-5554588

D5 = EP-A-0480520

D6 = WO-A-9612467

D7 = US-A-4548821

D8 = US-A-3945950

D9 = Morris, J.A., J. Am. Oil Chemists, 1979, pages 595-603

D10 = W. Umbach, Kosmetik, 1995, Georg Thieme Verlag, pages 361-371

2. Claim 3 relates to a perfume composition comprising at least 30% by wt. of one or more of (the following) perfume components (followed by a list of known perfume components). Claim 1 lacks novelty because it encompasses any perfume containing composition of the known perfume components, wherein at least 30% by wt (of the total wt?) one or more perfume components is/are present (i.e. also those merely comprising the perfume component in a solvent and perfume bases). In addition to the perfume compositions, the use of perfume components such as those defined in claim 3 for preventing or reducing malodour, the cosmetic method for reducing or preventing malodour by topically applying to human skin a composition comprising a perfume component as active agent capable of reducing malodour and deodorant products comprising the perfume

components listed in claim 3 (cf. claim 9, wherein the amount of perfume component with respect of the deodorant formulation remains undefined) are commonly known in the art (cf. D10, two last paragraphs on page 363 and page 365; D1, page 2, lines 3-8, page 2, lines 41-58, page 3, lines 50-59, page 4, lines 1-25, page 4, lines 50-64 and examples; D3, page 6, lines 11-15, table 1, page 10; D4, columns 1 to 5, column 6, lines 20-22; D5, page 2, line 1, page 3, lines 10-40; D6, pages 4, 5, tables 1, 2, Vertenex is PTBCHA, D7, D8, column 1, column 2, lines 49-65).

The Applicant should be aware of the fact that the discovery of a possible mode of action does not render patentable (novel and inventive) a known use of a known compound or does not render novel known compositions and products. The use of perfume compositions to reduce body malodour cannot be made novel through the statement of a not previously disclosed mode of action.

The Applicant asserts that some known perfume components (especially those defined in claim 3) are capable of inhibiting sublethally the Coryneform bacteria present in the human skin. However the effect achieved "reducing or preventing body malodour" is already known to be achieved by perfume components as active agents (cf. i.a. D10, D1, D4, D5, D6).

The compositions disclosed in claim 13 still encompass the compositions disclosed in D6 since the upper range limit 50% is considered as specifically disclosed in D6. D6 discloses i.a. PTBCHA as perfume component. This also applies to claim 12.

The compositions of claim 14 are novel in the light of the cited prior art in view of the fact that at least 5 perfume components are present.

3. Inventive step cannot be assessed when the requirements of novelty have not been met. However, in the light of the above cited prior art, it would appear that the problem underlying the present patent application lies in the provision of further perfume compositions comprising a mixture of perfume components being useful for providing deodorant formulations.

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With respect of the compositions claimed in claim 14, they can be considered to involve an inventive step insofar as the skill person would have not thought as obvious solution to the said problem of selecting this mixture of perfume components with a high MIC value.

**Re Item VI**

Certain documents cited

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
US-A-5874070 D11	23.02.99	09.06.97	-
WO-A-9850011 D12	12.11.98	05.05.98	05.05.97

Both earlier application D11 and D12 have been published after the presently claimed priority date. Having regard to the fact that they possess a filing date prior to the present priority date they may become relevant at the regional phase for assessing prior rights.

**Re Item VIII**

Certain observations on the international application

1. Claim 9 lacks clarity, since claim 9 includes a reference to claim 3 without clarifying which is the amount of perfume component relative to the deodorant product (Article 6). Therefore the amount of the perfume component in the deodorant product is unspecified.
2. The expression employed claim 8: "wherein the biotransformation, preferably by coryneform bacteria, of organic molecules present in human sweat is diminished sub-lethally" lacks clarity.

REPLACED BY  
ART 34 AMDT

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claim 3.

10. The use of a perfume composition, comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.
- 5 11. The use of a deodorant product, comprising a perfume composition which comprises at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.

claim 3.

10. The use of a perfume composition, comprising at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.

11. The use of a deodorant product, comprising a perfume composition which comprises at least 30% by weight of perfume components having a minimum inhibitory concentration (MIC) for coryneform bacteria of greater than 0.1%, to reduce body malodour.

12. A perfume composition comprising at least 30% by weight of one or more of the following perfume components;

(Z)-3,4,5,6,6-pentamethylhept-3-en-2-one, 2,6,10-trimethylundec-9-enal, 1-(4-Methoxyphenyl)-1-propene, diethylcyclohex-2-en-1-one, dimethylcyclohex-2-en-1-one, Basil comores, 2-methyl-5-(1-methyl-1-ethenyl)-2-cyclohexen-1-one, Cis-3-hexenyl salicylate, methyl 3,3-dimethylbicyclo(2.2.1)heptane-2-carboxylate, 2-methyl-3-(4-(1-methylethyl)phenyl)propanal, 1-(2,6,6-trimethyl-1,3-cyclohexadienyl)-2-buten-1-one, Dihydrojasnone, alpha, alpha-Dimethylphenylethylacetate, Dimethyl anthranilate, 1-(2-((1-(ethyloxy)ethyl)oxy)ethyl)benzene, 4-(4-methyl-3-pentenyl) cyclohex-3-ene-1-carbaldehyde, 3-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde, Fir needle, 3-(1,3-benzodioxol-5-yl)-2-methylpropanol, alpha-ionone, beta-ionone, tricyclo[5.2.1.0<sup>2,6</sup>]dec-4-en-8-yl ethanoate, Jasmopyrane forte, 1-methoxy-4-(2-propenyl)-benzene, 2-(1,1-dimethylethyl)cyclohexyl ethanoate, PTBCHA, 2,4-dimethyl-4-phenyltetrahydrofuran, 4-Methyl-2-(2-methylprop-1-enyl)tetrahydropyran, Rosemary Tunisian, 3,6-dihydro-2-phenyl-4-methyl-2H-pyran, Terpinolene extra, Tetrahydro linalol, Thyme white, Ti-tree pure, and Undecalactone gamma.

13. A perfume composition comprising at least 50% by weight of one or more of the following perfume components;

(Z)-3,4,5,6,6-pentamethylhept-3-en-2-one, 2,6,10-trimethylundec-9-enal, 1-(4-Methoxyphenyl)-1-propene, diethylcyclohex-2-en-1-one, dimethylcyclohex-2-en-1-one, Basil comores, 2-methyl-5-(1-methyl-1-ethenyl)-2-cyclohexen-1-one, Cis-3-hexenyl salicylate, methyl 3,3-dimethylbicyclo(2.2.1)heptane-2-carboxylate, Citronellol, 2-methyl-3-(4-(1-methylethyl)phenyl)propanal, 1-(2,6,6-trimethyl-1,3-cyclohexadienyl)-2-buten-1-one, Dihydrojasnone, alpha, alpha-Dimethylphenylethylacetate, Dimethyl anthranilate, 1-(2-((1-(ethyloxy)ethyl)oxy)ethyl)benzene, 4-(4-methyl-3-pentenyl) cyclohex-3-ene-1-carbaldehyde, 3-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde, Fir needle, 3-(1,3-benzodioxol-5-yl)-2-methylpropanol, alpha-ionone, beta-ionone, tricyclo[5.2.1.0<sup>2,6</sup>]dec-4-en-8-yl ethanoate, Jasmopyrane forte, 1-methoxy-4-(2-propenyl)-benzene, 2-(1,1-dimethylethyl)cyclohexyl ethanoate, PTBCHA, 2,4-dimethyl-4-phenyltetrahydrofuran, 4-Methyl-2-(2-methylprop-1-

enyi)tetrahydropyran, Rosemary Tunisian, 3,6-dihydro-2-phenyl-4-methyl-2H-pyran, Terpinolene extra, Tetrahydro linalol, Thyme white, Ti-tree pure, and Undecalactone gamma.

14. A perfume composition comprising at least 30% by weight of at least 5 of the following perfume components;
- 5 (Z)-3,4,5,6,6-pentamethylhept-3-en-2-one, 2,6,10-trimethylundec-9-enal, 1-(4-Methoxyphenyl)-1-propene, diethylcyclohex-2-en-1-one, dimethylcyclohex-2-en-1-one, Basil comores, 2-methyl-5-(1-methyl-1-ethenyl)-2-cyclohexen-1-one, Cis-3-hexenyl salicylate, methyl 3,3-dimethylbicyclo(2.2.1)heptane-2-carboxylate, Citronellol, Coriander, 2-methyl-3-(4-(1-methylethyl)phenyl)propanal,
- 10 1-(2,6,6-trimethyl-1,3-cyclohexadienyl)-2-buten-1-one, Dihydrojasnone, alpha,alpha-Dimethylphenylethylacetate, Dimethyl anthranilate, 1-(2-((1-ethyloxy)ethyl)oxy)ethyl)benzene, 4-(4-methyl-3-pentenyl) cyclohex-3-ene-1-carbaldehyde, 3-(4-methyl-3-pentenyl)cyclohex-3-ene-1-carbaldehyde), Fir needle, 3-(1,3-benzodioxol-5-yl)-2-methylpropanol, alpha-ionone, beta-ionone, tricyclo[5.2.1.0 2,6]dec-4-en-8-yl ethanoate, Jasmopyrane
- 15 forte, 1-methoxy-4-(2-propenyl)-benzene, 2-(1,1-dimethylethyl)cyclohexyl ethanoate), PTBCHA, 2,4-dimethyl-4-phenyltetrahydrofuran, 4-Methyl-2-(2-methylprop-1-enyl)tetrahydropyran, Rosemary Tunisian, 3,6-dihydro-2-phenyl-4-methyl-2H-pyran, Terpinolene extra, Tetrahydro linalol, Thyme white, Ti-tree pure, and Undecalactone gamma.

AMENDED SHEET



## PATENT COOPERATION TREATY

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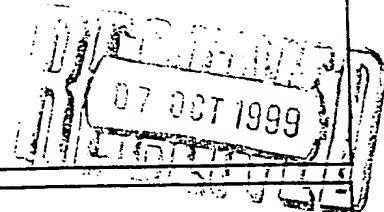
NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

HUMPHRIES, Martyn  
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ROYAUME-UNI



Date of mailing (day/month/year) 28 September 1999 (28.09.99)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference MTW50636/WO	
International application No. PCT/GB99/02013	International filing date (day/month/year) 06 July 1999 (06.07.99)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 07 July 1998 (07.07.98)
Applicant QUEST INTERNATIONAL B.V. et al	

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the international Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk(\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
07 July 1998 (07.07.98)	9814648.3	GB	08 Sept 1999 (08.09.99)

finalized diary

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